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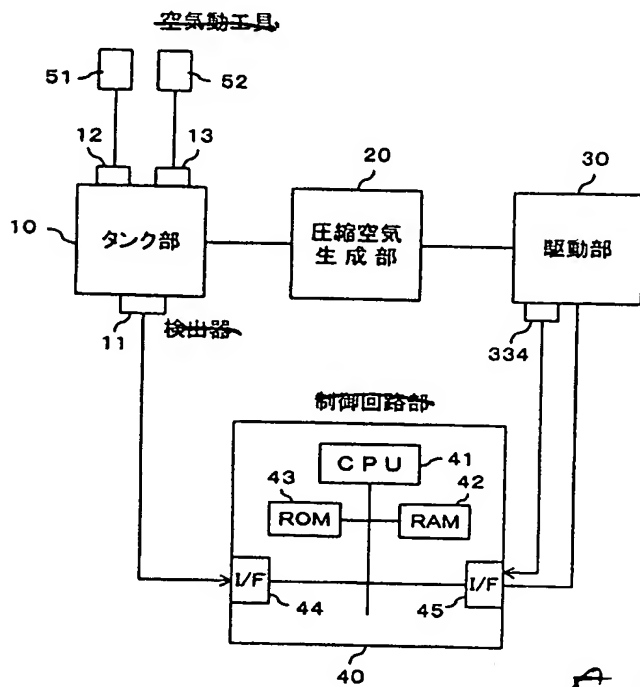
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【書類名】 図面

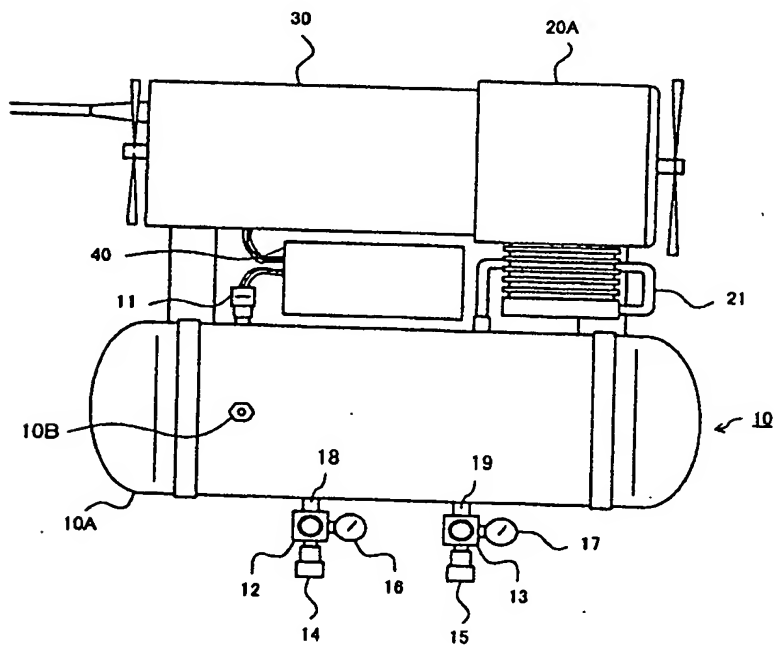
【図1】

Fig. 1



【図2】

Fig. 2



**[FIG. 1]**

**10 ... TANK PORTION**

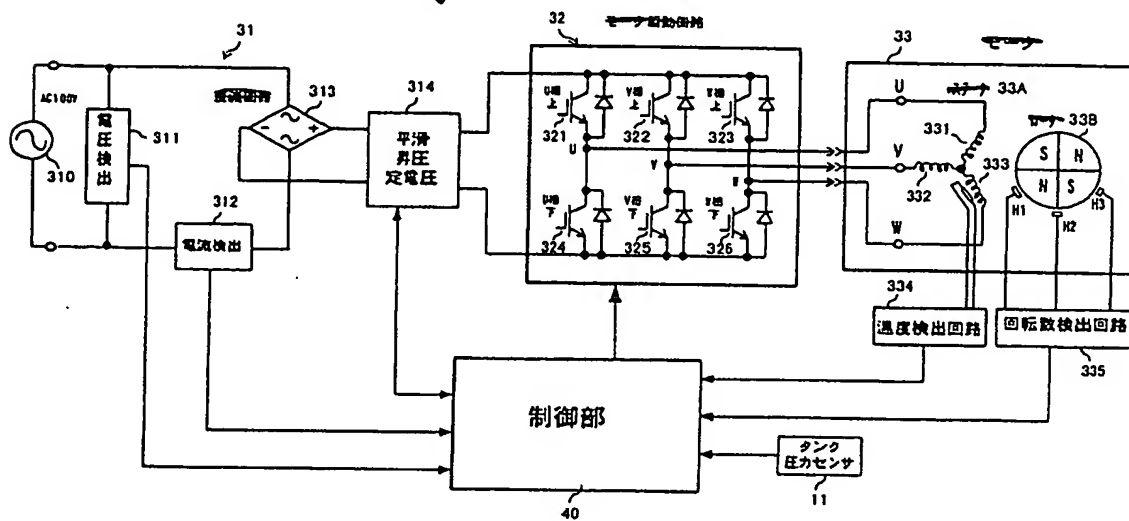
**11 ... PRESSURE SENSOR**

**20 ... COMPRESSED AIR GENERATION PORTION**

**30 ... DRIVE PORTION**

【図3】

Fig. 3



[FIG. 3]

11 ... TANK PRESSURE SENSOR

311 ... VOLTAGE DETECTOR

312 ... CURRENT DETECTOR

314 ... SMOOTHING/BOOSTING/CONSTANT-VOLTAGE CIRCUIT

32 ... MOTOR DRIVE CIRCUIT

321 ... U PHASE (UPPER)

322 ... V PHASE (UPPER)

323 ... W PHASE (UPPER)

324 ... U PHASE (LOWER)

325 ... V PHASE (LOWER)

326 ... W PHASE (LOWER)

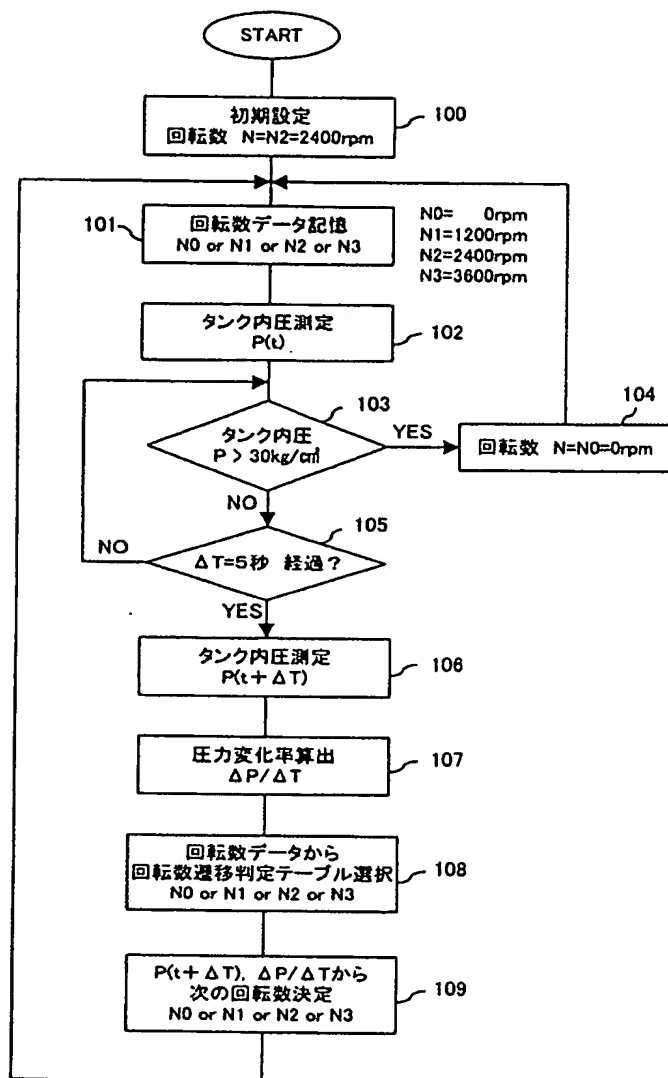
334 ... TEMPERATURE DETECTION CIRCUIT

335 ... ROTATIONAL SPEED DETECTION CIRCUIT

40 ... CONTROL CIRCUIT PORTION

【図4】

Fig. 4



[FIG. 4]

100: INITIALIZATION  $N = N_2 = 2400$  rpm.

101: STORE ROTATIONAL SPEED DATA  $N_0, N_1, N_2$  OR  $N_3$ .

102: MEASURE TANK PRESSURE  $P(t)$ .

103: IS TANK PRESSURE  $P$  HIGHER THAN  $30 \text{ kg/cm}^2$ ?

104  $N = N_0 = 0$  rpm.

105: HAS  $\Delta T$  of 5 sec PASSED?

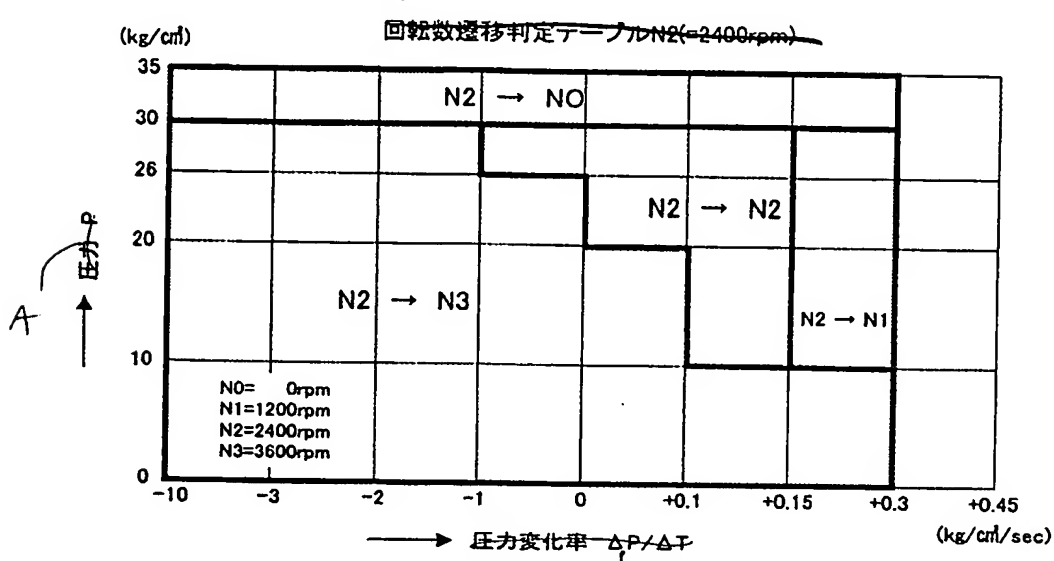
106: MEASURE TANK PRESSURE  $P(t+\Delta T)$ .

107: CALCULATE RATE  $\Delta P/\Delta T$  OF PRESSURE CHANGE.

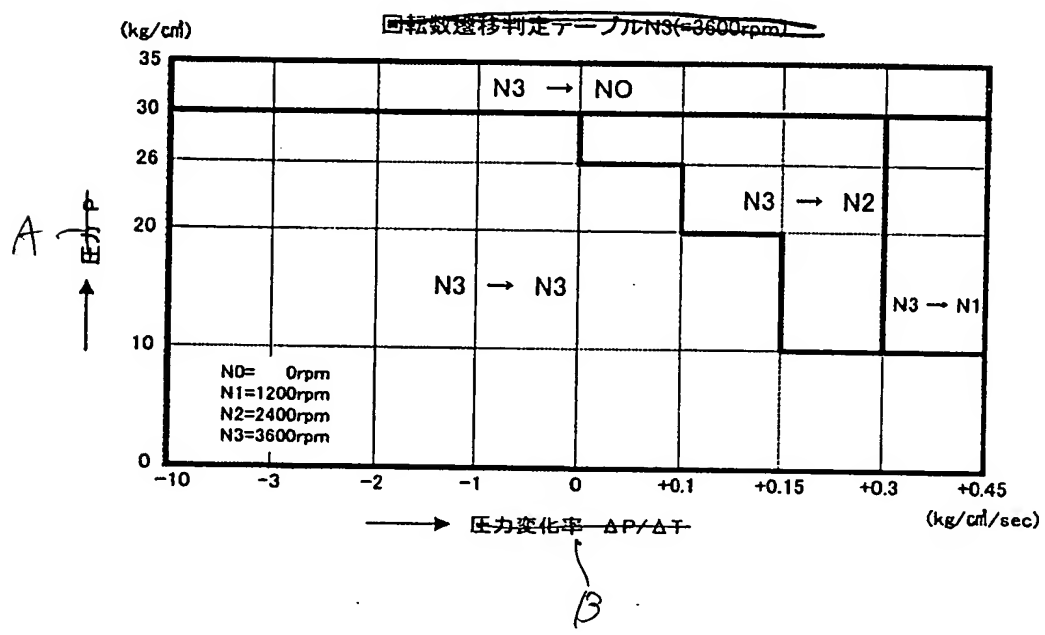
108: SELECT A ROTATIONAL SPEED TRANSITION JUDGMENT TABLE  $N_0, N_1, N_2$  OR  $N_3$  ACCORDING TO ROTATIONAL SPEED DATA.

109: DECIDE NEXT ROTATIONAL SPEED ON THE BASIS OF  $P(t+\Delta T)$  AND  $\Delta P/\Delta T$ .

【図5】 Fig. 5



【図6】 Fig. 6 B





[FIG. 5]

A: PRESSURE P

B: PRESSURE CHANGE RATE  $\Delta P/\Delta T$

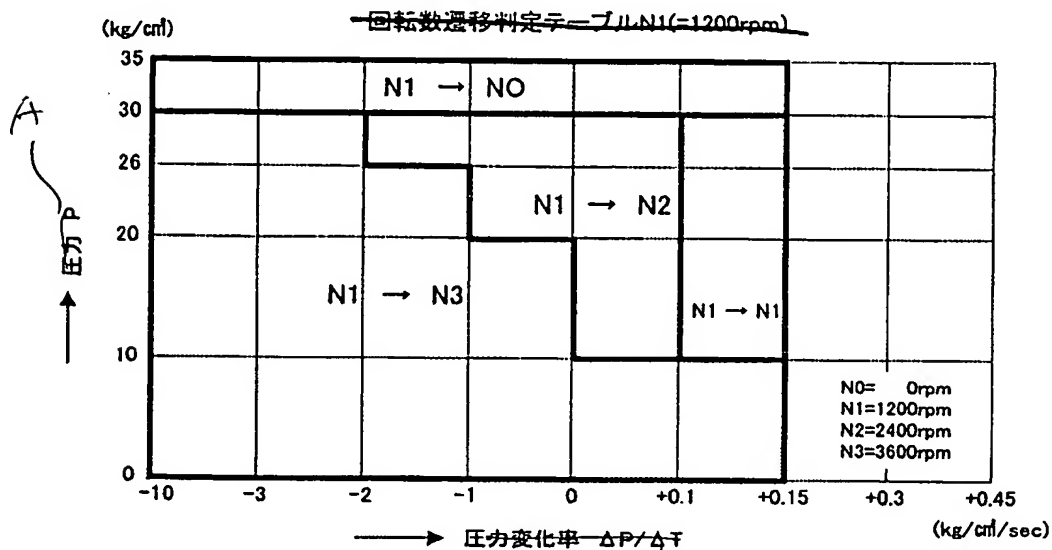
[FIG. 6]

A: PRESSURE P

B: PRESSURE CHANGE RATE  $\Delta P/\Delta T$

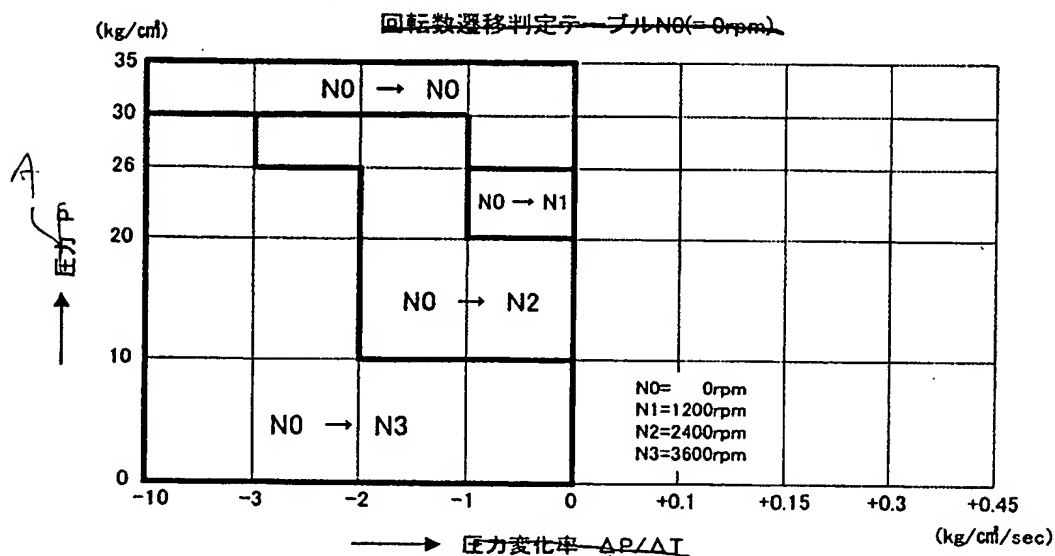
【図7】

Fig. 7



【図8】

Fig. 8



[FIG. 7]

A: PRESSURE P

B: PRESSURE CHANGE RATE  $\Delta P/\Delta T$

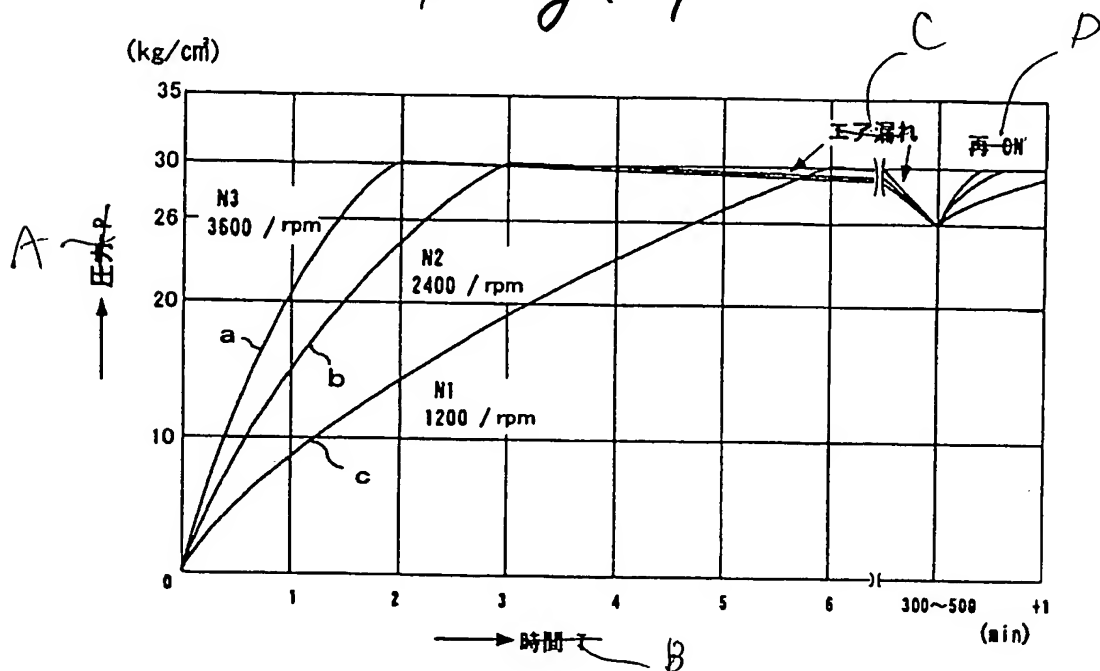
[FIG. 8]

A: PRESSURE P

B: PRESSURE CHANGE RATE  $\Delta P/\Delta T$

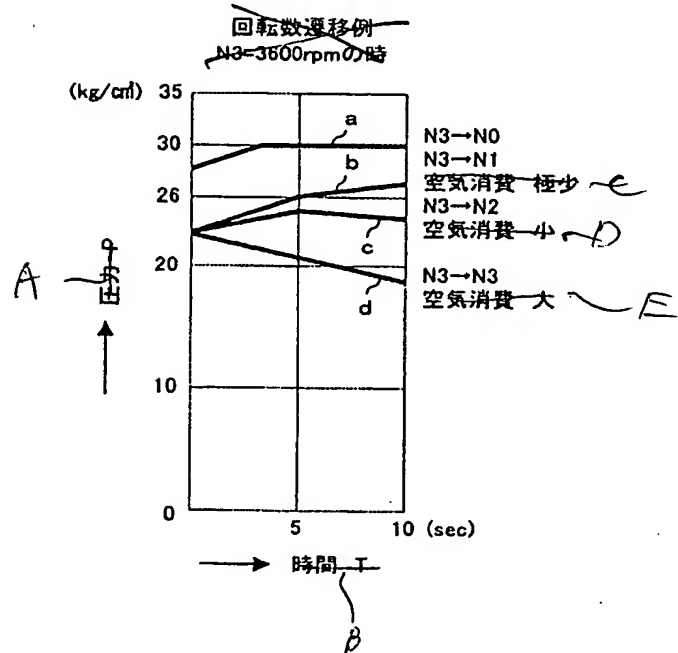
【図9】

Fig. 9



【図10】

Fig. 10



[FIG. 9]

A: PRESSURE P

B: TIME T

C: AIR LEAKAGE

D: RESTART

[FIG. 10]

A: PRESSURE P

B: TIME T

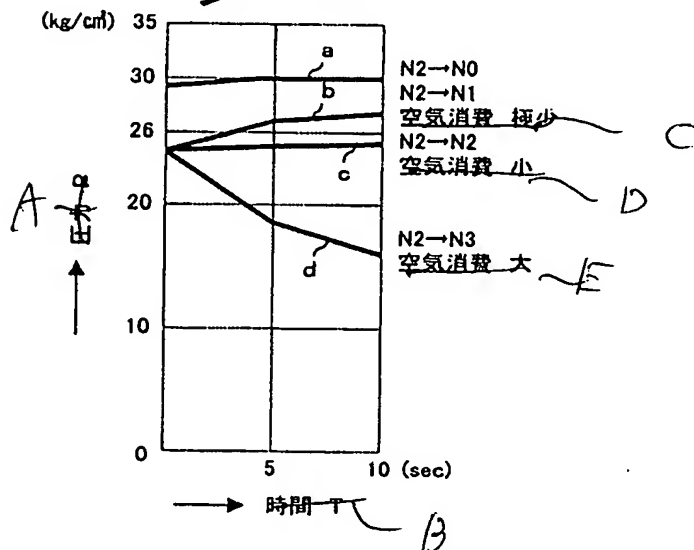
C: VERY LOW AIR CONSUMPTION

D: LOW AIR CONSUMPTION

E: HIGH AIR CONSUMPTION

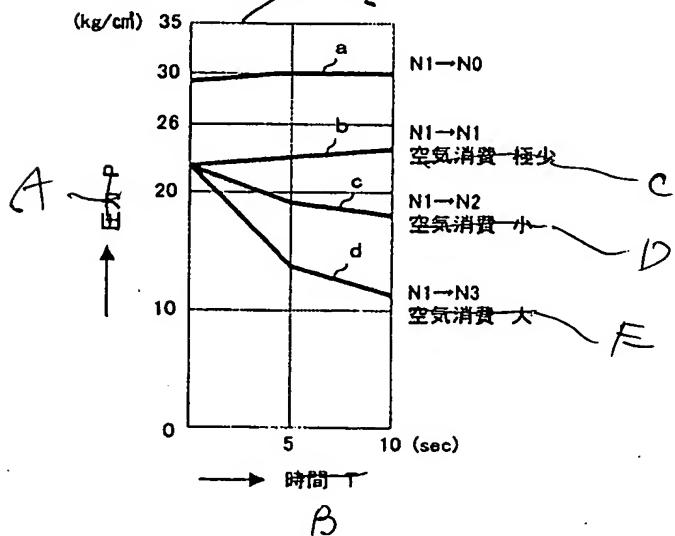
【図11】 Fig. 11

回転数遷移例  
N2=2400rpmの時



【図12】 Fig. 12

回転数遷移例  
N1=1200rpmの時



[FIG. 11]

A: PRESSURE P

B: TIME T

C: VERY LOW AIR CONSUMPTION

D: LOW AIR CONSUMPTION

E: HIGH AIR CONSUMPTION

[FIG. 12]

A: PRESSURE P

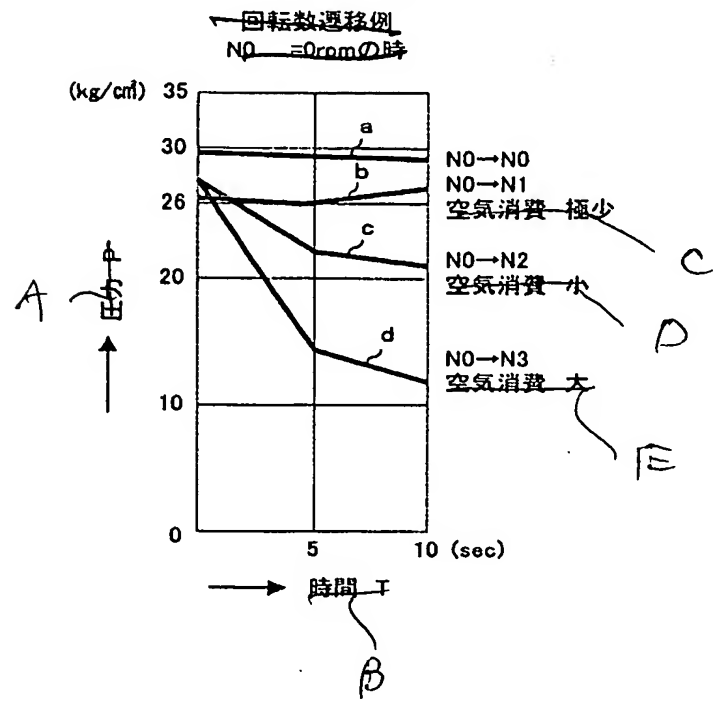
B: TIME T

C: VERY LOW AIR CONSUMPTION

D: LOW AIR CONSUMPTION

E: HIGH AIR CONSUMPTION

図13
 Fig. 13





[FIG. 13]

A: PRESSURE P

B: TIME T

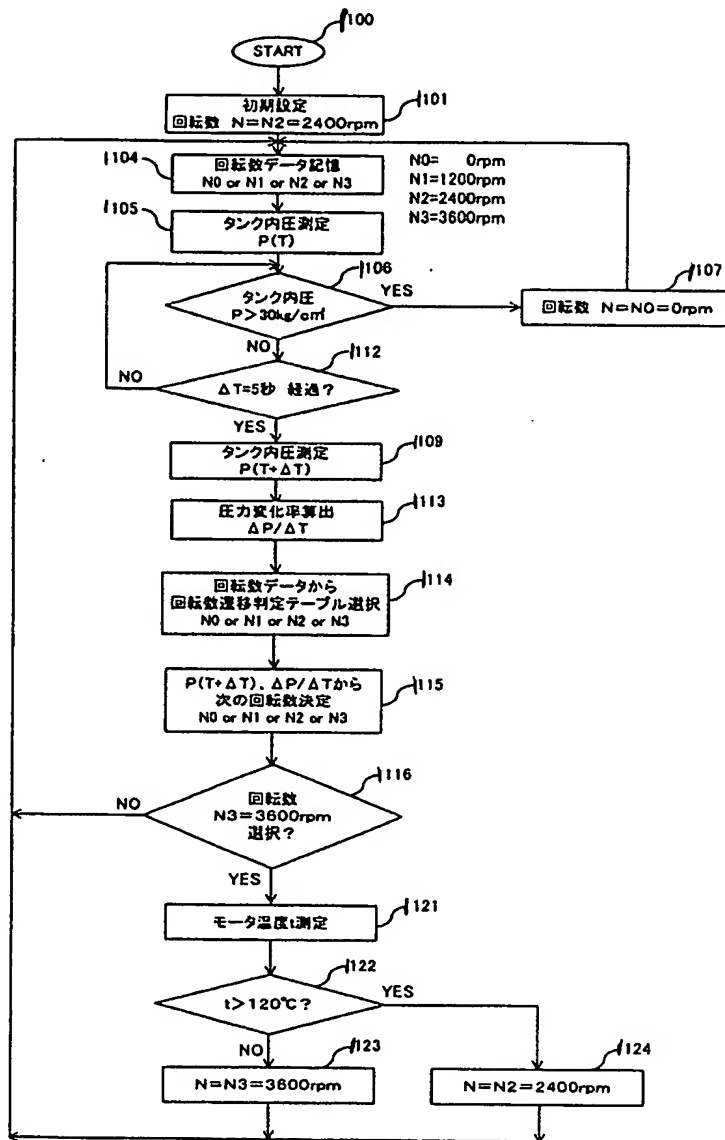
C: VERY LOW AIR CONSUMPTION

D: LOW AIR CONSUMPTION

E: HIGH AIR CONSUMPTION

【図4】

Fig. 14



[FIG. 14]

1101: INITIALIZATION  $N = N_2 = 2400$  rpm.

1104: STORE ROTATIONAL SPEED DATA  $N_0, N_1, N_2$  OR  $N_3$ .

1105: MEASURE TANK PRESSURE  $P(T)$ .

1106: IS TANK PRESSURE  $P$  HIGHER THAN  $30 \text{ kg/cm}^2$ ?

1107:  $N = N_0 = 0$  rpm.

1112: HAS  $\Delta T$  of 5 sec PASSED?

1109: MEASURE TANK PRESSURE  $P(T+\Delta T)$ .

1113: CALCULATE PRESSURE CHANGE RATE  $\Delta P/\Delta T$ .

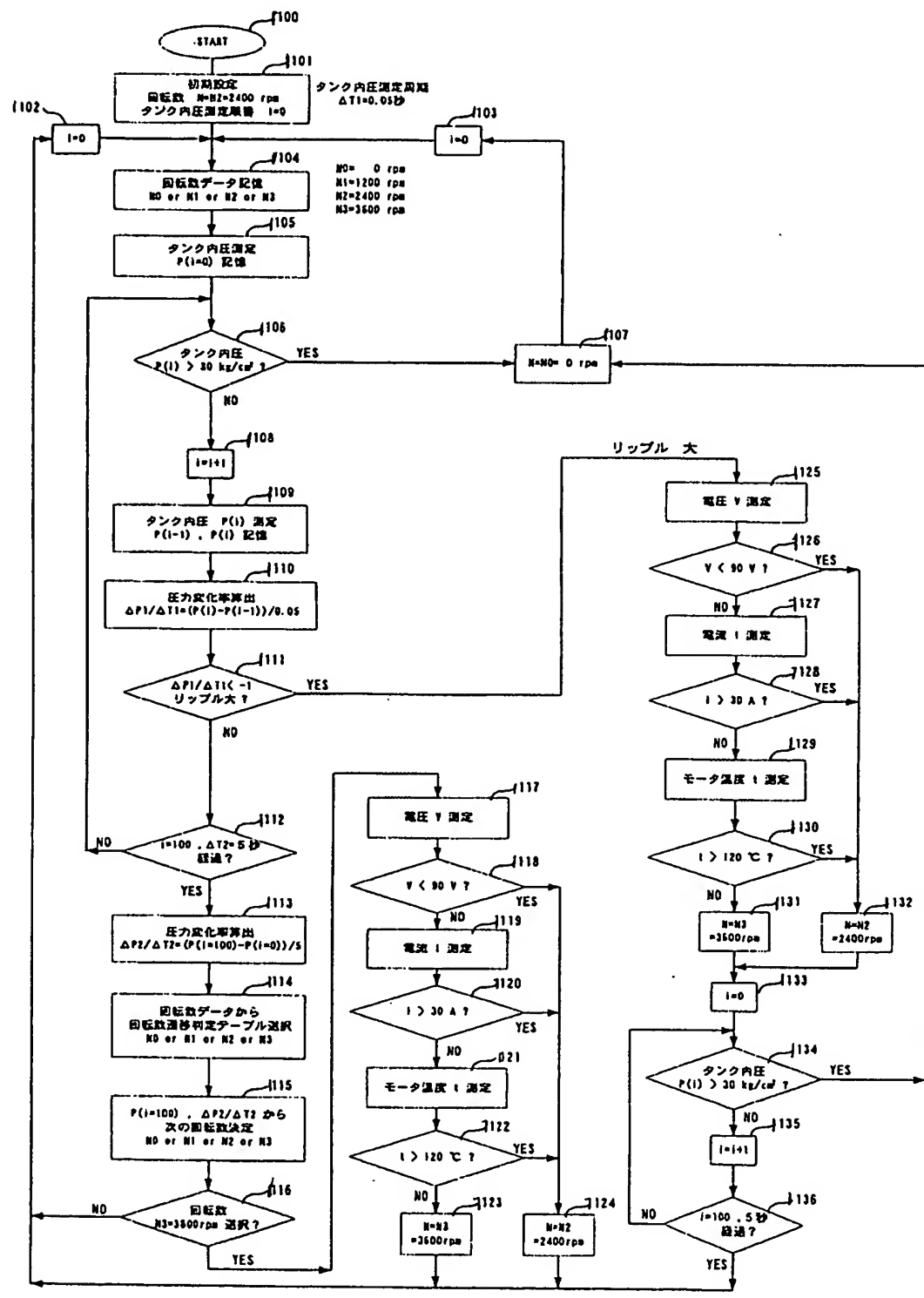
1114: SELECT A ROTATIONAL SPEED TRANSITION JUDGMENT TABLE  $N_0, N_1, N_2$  OR  $N_3$  ACCORDING TO ROTATIONAL SPEED DATA.

1115: DECIDE NEXT ROTATIONAL SPEED ON THE BASIS OF  $P(T+\Delta T)$  AND  $\Delta P/\Delta T$ .

1116: IS ROTATIONAL SPEED  $N_3 = 3600$  rpm SELECTED?

1121: MEASURE MOTOR TEMPERATURE  $t$ .

図5] Fig. 15



[FIG. 15]

1101: INITIALIZATION  $N = N_2 = 2400$  rpm AND TANK PRESSURE MEASURING SEQUENCE NUMBER  $i = 0$ .

TANK PRESSURE MEASURING CYCLE  $\Delta T_1 = 0.05$  sec

1104: STORE ROTATIONAL SPEED DATA  $N_0, N_1, N_2$  OR  $N_3$ .

1105: MEASURE TANK PRESSURE  $P(i=0)$ .

1106: IS TANK PRESSURE  $P(i)$  HIGHER THAN  $30 \text{ kg/cm}^2$ ?

1109: MEASURE TANK PRESSURE  $P(i)$  AND STORE  $P(i-1)$  AND  $P(i)$ .

1110: CALCULATE PRESSURE CHANGE RATE  $\Delta P_1/\Delta T_1 = \{P(i) - P(i-1)\}/0.05$ .

1111:  $\Delta P_1/\Delta T_1 < -1$ ? (IS RIPPLE LARGE?)

1112:  $i = 100$ ? (IS  $\Delta T_2$  OF 5 sec PASSED?)

1113: CALCULATE PRESSURE CHANGE RATE  $\Delta P_2/\Delta T_2 = \{P(i=100) - P(i=0)\}/5$ .

1114: SELECT A ROTATIONAL SPEED TRANSITION JUDGMENT TABLE  $N_0, N_1, N_2$  OR  $N_3$  ACCORDING TO ROTATIONAL SPEED DATA.

1115: DECIDE NEXT ROTATIONAL SPEED ON THE BASIS OF  $P(i=100)$  AND  $\Delta P_2/\Delta T_2$ .

1116: IS ROTATIONAL SPEED  $N_3 = 3600$  rpm SELECTED?

1117: MEASURE VOLTAGE  $E$ .

1119: MEASURE CURRENT  $I$ .

1121: MEASURE MOTOR TEMPERATURE  $t$ .

RIPPLE IS LARGE

1125: MEASURE VOLTAGE  $E$ .

1127: MEASURE CURRENT  $I$ .

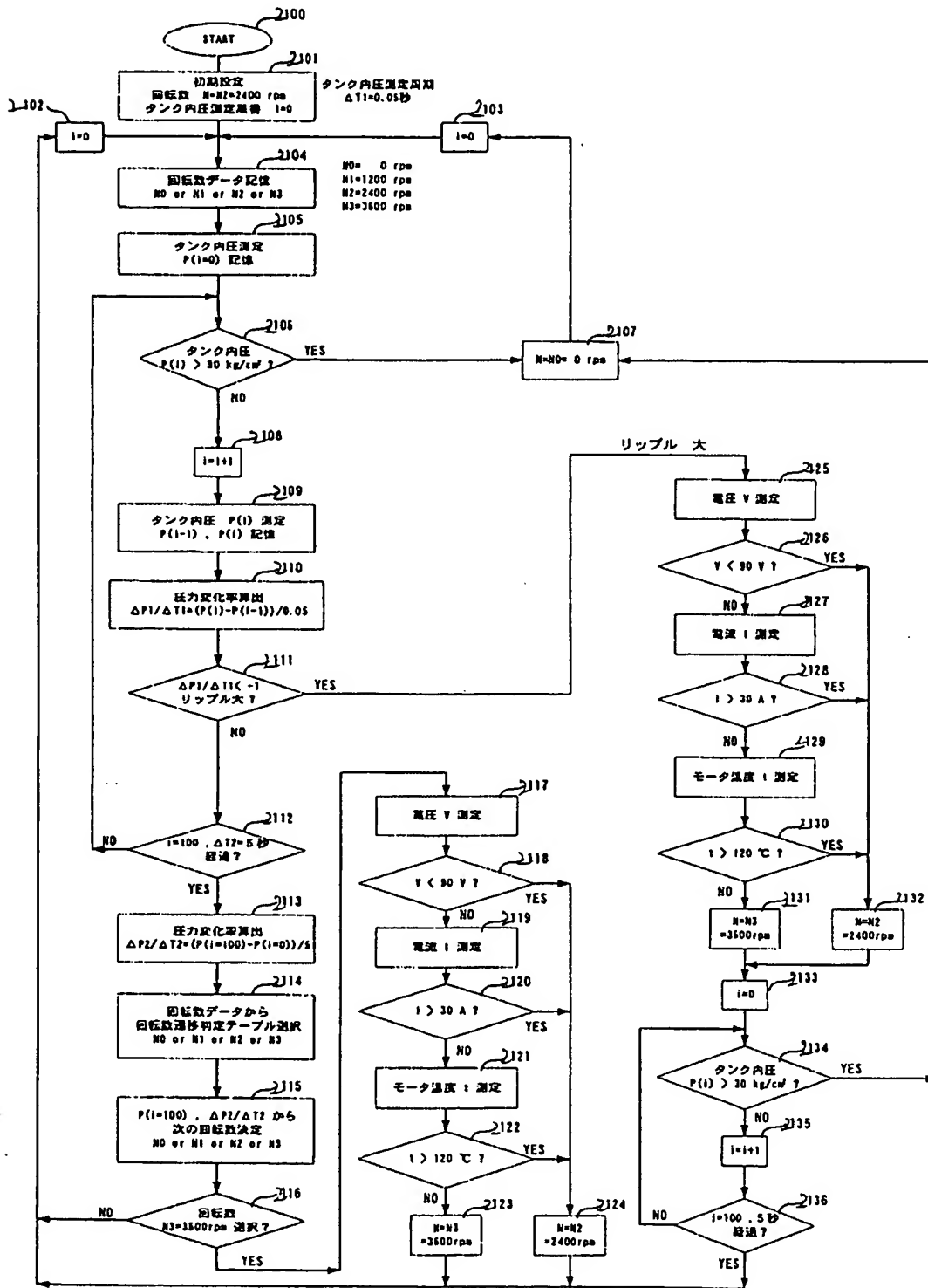
1129: MEASURE MOTOR TEMPERATURE  $t$ .

1134: IS TANK PRESSURE  $P(i)$  HIGHER THAN  $30 \text{ kg/cm}^2$ ?

1136:  $i = 100$ ? (IS THE TIME OF 5 sec PASSED?)

【図4】

Fig. 16



[FIG. 16]

2101: INITIALIZATION  $N = N_2 = 2400$  rpm AND TANK PRESSURE MEASURING SEQUENCE NUMBER  $i = 0$ .

TANK PRESSURE MEASURING CYCLE  $\Delta T_1 = 0.05$  sec

2104: STORE ROTATIONAL SPEED DATA  $N_0, N_1, N_2$  OR  $N_3$ .

2105: MEASURE TANK PRESSURE  $P(i=0)$  AND STORE  $P(i=0)$ .

2106: IS TANK PRESSURE  $P(i)$  HIGHER THAN  $30 \text{ kg/cm}^2$ ?

2109: MEASURE TANK PRESSURE  $P(i)$  AND STORE  $P(i-1)$  AND  $P(i)$ .

2110: CALCULATE PRESSURE CHANGE RATE  $\Delta P_1/\Delta T_1 = \{P(i) - P(i-1)\}/0.05$ .

2111:  $\Delta P_1/\Delta T_1 < -1$ ? (IS RIPPLE LARGE?)

2112:  $i = 100$ ? (IS  $\Delta T_2$  OF 5 sec PASSED?)

2113: CALCULATE PRESSURE CHANGE RATE  $\Delta P_2/\Delta T_2 = \{P(i=100) - P(i=0)\}/5$ .

2114: SELECT A ROTATIONAL SPEED TRANSITION JUDGMENT TABLE  $N_0, N_1, N_2$  OR  $N_3$  ACCORDING TO ROTATIONAL SPEED DATA.

2115: DECIDE NEXT ROTATIONAL SPEED ON THE BASIS OF  $P(i=100)$  AND  $\Delta P_2/\Delta T_2$ .

2116: IS ROTATIONAL SPEED  $N_3 = 3600$  rpm SELECTED?

2117: MEASURE VOLTAGE  $E$ .

2119: MEASURE CURRENT  $I$ .

2121: MEASURE MOTOR TEMPERATURE  $t$ .

RIPPLE IS LARGE

2125: MEASURE VOLTAGE  $E$ .

2127: MEASURE CURRENT  $I$ .

2129: MEASURE MOTOR TEMPERATURE  $t$ .

2134: IS TANK PRESSURE  $P(i)$  HIGHER THAN  $30 \text{ kg/cm}^2$ ?

2136:  $i = 100$ ? (IS THE TIME OF 5 sec PASSED?)





[FIG. 17]

A: NO AIR CONSUMPTION

B: HIGH AIR CONSUMPTION

C:  $\Delta T_1 = 0.05 \text{ sec}$

D: DETECTED RIPPLES

E: NO DETECTED RIPPLE

F: PRESSURE P

G: TIME T